

PATENT APPLICATION

**RESPONSE UNDER 37 CFR §1.116
EXPEDITED PROCEDURE
TECHNOLOGY CENTER ART UNIT 2811**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Jasuhide OHASHI

Application No.: 09/028,456

Filed: February 24, 1998

For: SEMICONDUCTOR DEVICE WITH POWER SOURCE CONDUCTOR PATTERN
AND GROUNDING CONDUCTOR PATTERN

Group Art Unit: 281

Examiner: L. Thai

Docket No.: JAO 40656

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AMENDMENT AFTER FINAL REJECTION UNDER 37 CFR §1.116

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

In response to the Office Action dated October 22, 1999, please amend the above-identified application as follows:

IN THE CLAIMS:

Please cancel claims 1-23.

Please add the following claims 24-47:

--24. A semiconductor device comprising:

a semiconductor chip, the semiconductor chip having a plurality of pads for signal formed along peripheral edges thereof, the semiconductor chip having a plurality of pads for power source and grounding disposed in a central area thereof; and

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a flexible substrate having an opening formed therein, the flexible substrate having a power source common lead connected to the pads for power source, the flexible substrate having a grounding common lead connected to the pads for grounding, middle portions of the power source and grounding common leads continuously positioned inside the opening, and end portions of the power source and grounding common leads formed on the flexible substrate.--

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--25. A semiconductor device comprising:

a semiconductor chip, the semiconductor chip having a plurality of pads; and

a flexible substrate having an opening formed therein, the flexible substrate having a common lead having an electrical connection branch connected to one of the pads, a middle portion of the common lead continuously positioned inside the opening, and end portions of the common lead formed on the flexible substrate.--

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--26. The semiconductor device according to claim 25, wherein the electrical connection branch has a connecting portion narrower than and connected to one of the pads.--

--27. The semiconductor device according to claim 25, wherein the electrical connection branch is connected to more than one of the pads.--

--28. A semiconductor device comprising:

a semiconductor chip, the semiconductor chip having a plurality of pads; and

a flexible substrate having an opening formed therein, the flexible substrate having a common lead having an electrical connection branch, the electrical connection branch having a portion narrower than each of the pads, a middle portion of the common lead continuously positioned inside the opening, and end portions of the common lead formed on the flexible substrate.--

--29. The semiconductor device according to claim 28, wherein the portion of the electrical connection branch narrower than each of the pads is connected to one of the pads.--

--30. A semiconductor device comprising:

a semiconductor chip having a plurality of pads; and

a flexible substrate having an opening formed therein, the flexible substrate having a plurality of leads formed on the flexible substrate and protruding in the opening, the flexible substrate having a common lead, a middle portion of the common lead continuously positioned inside the opening, and end portions of the common lead formed on the flexible substrate, the middle portion of the common lead continuously positioned inside the opening being wider than the leads formed on the flexible substrate and protruding in the opening,

wherein the leads and the common lead are connected to the pads.--

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cont
--31. A semiconductor device comprising:

a semiconductor chip having a plurality of pads; and

a flexible substrate having an opening formed therein, the flexible substrate having a common lead connected to one of the pads, the common lead including a stress absorbing portion, a middle portion of the common lead continuously positioned inside the opening, and end portions of the common lead formed on the flexible substrate.--

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--32. A semiconductor device comprising:

a semiconductor chip having a plurality of pads; and

a flexible substrate having an opening formed therein, the flexible substrate having a plurality of leads formed on the flexible substrate and protruding in the opening, the flexible substrate having a common lead, a middle portion of the common lead continuously positioned inside the opening, and end portions of the common lead formed on the flexible substrate,

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wherein the leads protrude in the opening in a direction different from a direction in which the common lead protrudes in the opening,

wherein the leads and the common lead are connected to the pads.--

--33. The semiconductor device according to claim 32, wherein the common lead has an electrical connection branch, a portion of the electrical connection branch is positioned in the opening, an other portion of the electrical connection branch is formed on the flexible substrate, and the electrical connection branch and the leads protrude in the opening in the same direction.--

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and
--34. A semiconductor chip comprising:
a plurality of pads for signal formed along peripheral edges of the semiconductor chip; and
a plurality of pads for power source and grounding disposed in a central area of the semiconductor chip.--

--35. The semiconductor chip according to claim 34, wherein the pads for power source and grounding are arranged in lines respectively.--

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--36. A semiconductor chip comprising;
a plurality of pads for signal; and
a plural plurality of pads for or power source and grounding formed to be bigger than the signal pads.--

--37. A flexible substrate having an opening formed therein comprising:
a power source common lead, a middle portion of the power source common lead continuously positioned inside the opening, and end portions of the power source common lead formed on the flexible substrate; and

a grounding common lead, a middle portion of the grounding common lead continuously positioned inside the opening, and end portions of the grounding common lead formed on the flexible substrate.--

--38. A flexible substrate having an opening formed therein comprising:

a common lead having an electrical connection branch, a middle portion of the common lead continuously positioned inside the opening, and end portions of the common lead formed on the flexible substrate.--

--39. The flexible substrate according to claim 38, wherein a portion of the electrical connection branch is positioned inside the opening, another portion of the electrical connection branch is formed on the flexible substrate.--

--40. A flexible substrate having an opening formed therein comprising:

a plurality of leads formed on the flexible substrate and protruding in the opening; and

a common lead, a middle portion of the common lead continuously positioned inside the opening, and end portions of the common lead formed on the flexible substrate,

wherein the middle portion of the common lead continuously positioned inside the opening is wider than the leads formed on the flexible substrate and protruding in the opening.--

--41. A flexible substrate having an opening formed therein comprising:

a common lead having a stress absorbing portion, a middle portion of the common lead continuously positioned inside the opening, and end portions of the common lead formed on the flexible substrate.--

--42. The flexible substrate according to claim 41, wherein the stress absorbing portion is a bent section.--

--43. The flexible substrate according to claim 41, wherein the stress absorbing portion is formed at a portion except an electrically connecting portion.--

--44. The flexible substrate according to claim 41, wherein more than one stress absorbing portion is formed in the common lead.--

--45. The flexible substrate according to claim 44, wherein each stress absorbing portion is formed inside the opening and adjacent to an edge of the opening.--

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--46. A flexible substrate having an opening formed therein comprising:
a plurality of leads formed on the flexible substrate and protruding in the opening; and
a common lead, a middle portion of the common lead continuously positioned inside the opening, and end portions of the common lead formed on the flexible substrate, wherein the leads protrude in the opening in a direction different from a direction in which the common lead protrudes in the opening.--

--47. The flexible substrate according to claim 46, wherein the common lead has an electrical connection branch, a portion of the electrical connection branch is positioned in the opening, another portion of the electrical connection branch is formed on the flexible substrate, and the electrical connection branch and the leads protrude in the opening in the same direction.--

REMARKS

Claims 24-47 are pending. By this Amendment, claims 1-23 are canceled, and claims 24-47 are added. No new matter is added.

Entry of the amendments is proper under 37 CFR §1.116 since the amendments:
(a) place the application in condition for allowance; and (b) do not raise any new issue requiring further search and/or consideration. The cancellation of claims 1-23 is necessary

and was not earlier presented because it is made in response to arguments raised in the final rejection. Further, the addition of claims 24-47 are merely for clarification purposes. Entry of the amendments is thus respectfully requested.

The Office Action rejects claims 1-7 and 15-23 under 35 U.S.C. §102(b) over Higgins (U.S. Patent No. 5,212,404). This rejection is moot in view of the cancellation of claims 1-7 and 15-23.

The Office Action rejects claims 8-14 under 35 U.S.C. §103(a) over Higgins. This rejection is moot in view of the cancellation of claims 8-14.

Applicant submits that Higgins does not disclose or suggest a flexible substrate having a grounding common lead connected to the pads for grounding, middle portions of the power source and grounding common leads continuously positioned inside the opening, and end portions of the power source and the grounding common leads formed on the flexible substrate, as recited in claim 24. In fact, as shown in Higgins, there is no continuously positioned portion inside an opening 30, for example. That is, in Higgins, a paddle 37, for example, is positioned inside the opening 30. Accordingly, claim 24 is not anticipated or would not have been obvious over Higgins.

For similar reasons, claims 25, 28, 30- 32, 37, 38, 40, 41 and 46 which recite a middle portion of the common lead continuously positioned inside the opening, would not have been obvious or not anticipated by Higgins. Because claims 26 and 27 depend from claim 25, claim 29 depends from claim 28, claim 33 depends from claim 32, claim 39 depends from claim 38, claims 42-45 depend from claim 41, and claim 47 depends from claim 46, these claims also are allowable.

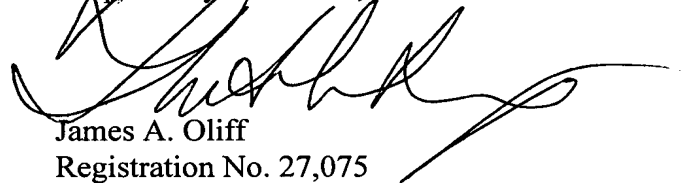
Further, Higgins does not disclose or suggest a plurality of paths for power source and grounding disposed in a central area of the semiconductor chip, as recited in claim 34, or a

plurality of paths for power source and grounding formed to be bigger than the signal paths, as recited in claim 36. Accordingly, claims 34 and 36, and claim 35 depending therefrom, also are not anticipated or would not have been obvious over Higgins.

Applicant submits that application is in condition for allowance. Prompt consideration and allowance are earnestly solicited.

Should the Examiner believe anything further is desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact Applicant's undersigned representative at the telephone number listed below.

Respectfully submitted,



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